

File 10814

September 25, 1985

MEMO TO FILE

SUBJECT: New York State Radioactive Material License 210-0090
Cesium 137 Sealed Source (Industrial Nucleonics Corporation), Model
No. S6, 100 millicuries (2 sources of 50 millicuries each), Holder
Model No. LS101

Industrial Nucleonics is now Accuray, 500 Ackerman Road, Columbus, Ohio
43202, Phone No. (614)/261-2000.

I contacted Patty Hoke of Accuray Specialty Products Division, who
directed me to Don Stephens, Health Physics of Accuray. Mr. Stephens had a
record of all sources that Nucleonics had sold us which included the two
cesium 137 sources as well as four radium 226 sources. The radium sources
were disposed of by E. W. Schustic at a disposal site in 1972 according to a
letter in their files.

Mr. Stephens said Nuclear Research Corporation, 125 Titus Avenue,
Warrington, Pennsylvania 18976, Phone No. (215)/343-5900 are now receiving
sources to be disposed of. He further said that they (Accuray) would take
care of having the sources properly crated, identified with the proper
radioactive labels and the area wipe tested if we desired. I indicated that
we would require this service and he promised to have Mr. Fred Sangers of the
Special Products Division contact me. He further informed me that the travel
expenses associated with this service would probably be minimal because they
use an agent who resides within 50-miles of Niagara Falls. He further stated
that if we could arrange to have the carrier that would transport the sources
to Warrington available at that time the agent would sign all the necessary
papers documenting that the proper procedures had been followed. He then
suggested that I call Mr. Peter Hatsiz at Nuclear Research Corporation to let
them know that we were planning to send them the two cesium sources.

On September 24, 1985 I contacted Peter Hatsiz as directed. He asked me
to let them know when the sources would be shipped; a purchase order would be
required at that time. He said that if we desired we could purchase crates
for \$75.00 from them for shipping the sources; a disposal charge of \$125.00 is
required for each source.

DJH
D. J. Hansen

243m/

UCCNHT0003243

September 25, 1985

Called Columbus Scientific Industries Corporation, P. O. Box 9908, Austin, Texas, Phone No. (512)/258-5191 and spoke to Mr. John Rhodes, Radiation Safety Officer about two X-ray Fluorescent Analyzers (Portable Isotope Analyzers) with four sources - Cadmium 109 - 3 millicuries; Iron 55 - 20 millicuries; Cobalt 57 - 1 millicurie and Plutonium 238 - 30 millicuries.

He stated that:

a) we could read the manual that came with the analyzers and it should tell us who to contact in regard to disposing of these sources.

b) we could call the appropriate New York State Agency (NRC) and find out what to do with these sources and who locally would be able to dispose of them.

c) we could call him back with the date that these sources were acquired and he would work up a quotation (approximately \$500 per source) except for the plutonium 238 which would create a problem such as having to be transported in an air tight container by surface only with proper identification, papers etc.

d) we could contact the manufacturer of these sources (Amerchand, Chicago, Illinois, Phone No. 800-323-6695) and perhaps they could assist us in this endeavor.

He further stated that New York State NRC should be able to answer all our questions on how to dispose of these sources.

Mary Ann Undercofler
234m



UCCNHT0003244

September 26, 1985

Received phone call from Fred Sanger, Specialty Products Division, Accuray. We agreed that they would send in a representative the week of October 14 to package and tag the two cesium 137 sources. We will have to provide personnel to disconnect the source from the shaft furnace and provide proper packaging for the sources. The latter could consist of a wooden pallet to which the source and holder could be affixed and covered. The covering could be cardboard. He will call prior to the week of the 14th for final arrangements. I am to provide them with a purchase order when they arrive.

UCCNHT0003245

October 17, 1985

On October 16, 1985 Mr. Chuck Kolodjeski of Accuray arrived to package the two cesium-137 sources. The sources were strapped to a 3' x 3' pallet, encased in lead and covered with a pallet box. He then performed a radiological survey 36" from the surface of the container. The container was then labeled with the appropriate yellow radioactive identification label, one on each side. A common carrier, ARA Smith Motor Corporation of Buffalo, NY was recommended for transporting the sources to Nuclear Research in Warrington, PA.

Purchase Order No. 615-301935 was issued to Accuray for services performed, Purchase Order No. 615- 301927 was issued to Nuclear Research for disposal of the sources and ARA Smith Motor Corporation was prepaid for transporting the sources to Warrington, PA.

Called Mr. Hatsiz of Nuclear Research Corporation to let them know that the two cesium sources were leaving Niagara Falls today, October 17, 1985, via ARA Smith Motor Corporation. I gave him our address and requested that he forward to us the proper papers indicating that the sources had been received by them for disposal. He confirmed that the disposal price would be \$125 00 for each source.

UCCNHT0003246

September 25, 1985

Contacted Len Hendrickson at Americhand, Chicago, Illinois, 800/323-6695 and told him that John Rhodes of Columbus Scientific Industries Corporation suggested we contact them since they made the sources for our portable isotope analyzers.

He informed me that they were in the process of setting up an organization to receive or take back radioactive sources and that he would contact me within a week to let me know the details.

However he implied that they might not take back the plutonium 238 but he did say the decision would be made before the end of the week on the plutonium source. When I inquired as to how we could dispose of the plutonium source he suggested I contact Chemical Nuclear Systems in South Carolina, 803/256-0450 who apparently have a connection with Barnwell.



D. J. Hansen

243m/

UCCNHT0003247

October 2, 1985

Contacted Mr. Robert Kelley of the New York State Department of Labor, Occupational Health, Buffalo, NY 716/847-7140 to ask about disposing of the radioactive sources that the manufacturers would not accept. He gave me the names of the following organizations that possible could help. The included:

1. Alma Nuclear (Mike Komorek), 716/883-9164
2. Nuclear Diagnostics, Lower South Road, Peekskill, NY, (Allen Jones), 914/737-7330.
3. Teledyne, Westwood, NJ

Radium
I called Allen Jones of Nuclear Diagnostics and told him that I was having difficulty disposing of the following radioactive materials. These included plutonium 238 sealed source, 30 millicuries, an unknown source and quantity of uranium, some thoria crucibles, one bottle of thorium nitrate and one bottle of thorium oxide. He informed me there would be no problem getting rid of the the thorium materials. They have just received permission to utilize a disposal site for radium provided it is not in excess of 30 millicuries. He will send me the information by mail on what is required for radium disposal. In order to estimate the quantity of radium that we have it will be necessary to expose the source in an open area and measure the radiation with a Gieger Counter at a distance of one (1) meter. Because we do not know the quantity of radium in our possession he recommended that we use a qualified person to do this (our Radiation Safety Officer for example.)

The real problem exists with the plutonium sealed source because it is 30 millicuries. Currently there is a law that prohibits disposal of this material anywhere. He is not certain how to proceed but discussed exceptions on disposal. For example, if the waste products are less than 10 nanocuries per gram, then it is possible that it can be disposed of in certain approved locations. However, the tests necessary to identify the waste products and their radioactivity could cost as much as \$50,000. The other alternative if permission can be granted is to have it okayed to store in a special container. Right now the containers are used for nuclear power plant waste but the law prohibits or does not cover the sealed source plutonium. This container costs \$800. He suggested that I write him a letter containing all the pertinent information we have on the plutonium source and he will attempt to see if he can find a way of disposing of it.

It is advantages to dispose of the source at the same time as the thorium, radium and hopefully plutonium since there is a transportation charge to transport the material from Niagara Falls to Peekskill.

I asked him if it would be feasible for us to sell, give or whatever, the source contained in a portable isotope analyzer as a means of getting it off our hands and he said that this is a viable method.

UCCNHT0003248

October 21, 1985

Re: Radium Sources Stored in a 1-1/2' D x 1-1/2' L Steel Cylinder

On Friday, October 18 we opened the steel cylinder and found that a lead cylinder surrounded by sand was inside. When the top of the lead cylinder was removed (the cylinder was approximately 2" thick) we found it contained a small paper envelope which we assumed was the radium that was removed from the safe in Building 94. It also contained what looked like a pipe nipple. The nipple appeared to be more radioactive. At this point we discontinued our investigation and called Adam Malik of Linde Tonawanda who is our interim Radioactive Officer. He suggested we measure the radiation from different distances from the sources which he could then compare to a know source in order to determine the quantity of radioactive material we have.

The envelope was removed first using a set of tongs to avoid getting too close to the source and was placed on a piece of paper on the floor where the following measurements were made with the Thyac III Victoreen Gieger Counter, Model No. 489-35, Serial No. 3407.

<u>Distance from Source</u>	<u>Reading</u>
1 meter	0.2 millirems/hour
50 centimeters	0.4 millirems/hour
10 centimeters	3.5 millirems/hour

The pipe source was removed and was found to have writing on the outside which identified it as an alphasource gauge. The radioactivity was measured to be as follows:

<u>Distance from Source</u>	<u>Reading</u>
1 meter	0.4 millirems/hour
50 centimeters	1.7 millirems/hour
10 centimeters	50.0 millirems/hour

The reading on the gauge was read from a distance with a cathetometer. Part of the label was missing but the following information was still visible:

National Research Corporation, Alphasource Gauge, 0.05 r-8/hrs at 1 foot. Use and store in a well ventilated room. This gauge contains less than 500 micrograms of radium. Read instructions carefully Gamma radiation not over 0.05 r-8/hrs at 1 foot (Patents - ? - Serial No 2497213).

D J. Hansen

UCCNHT0003249